its victims. No bird was missing. The only survivors in the cage were the pair of the Spotted Munias and—to my extreme surprise and pity—the one legged Baya. I cannot yet imagine the author of this carnage. The other cages on the cot were untouched.

Next night I placed the one legged baya in the same cage on the same cot and lay in wait in the adjoining room for the enemy. Nothing happened; only a musk rat was heard chirping. I had seen it the previous night when I searched the room, but I had not suspected it of the crime.

The Baya with its one leg lived many months in quite good health. The loss of one leg hampered its movements, but it could support itself on the perch and at night it perched quite firmly. When I returned home I had, due to circumstances, no alternative but to set it free in a garden.

Can you suggest the name of the mysterious enemy? Could it have been the musk rat?

PORBANDER, V. M. VASU.
August 14, 1941. *Advocate.*

[The common musk shrew is insectivorous—insects, cockroaches in particular being the object of its entry into houses—but these shrews have been known to eat meat and may attack small birds or mammals—this taste for meat-eating may be more developed in a particular individual; or the culprit may have been an ordinary house rat. The attacker undoubtedly seized its victim from outside, the frantic fluttering of the birds against the wire-mesh giving it the opportunity to seize them.—EDS.]

XIII.—FURTHER OBSERVATIONS ON THE EGG-LAYING HABITS OF THE LIZARD, *CALOTES VERSICOLOR* (BOULENGER).

In a paper (Asana '31) published in this *Journal* the writer has given an account of some natural activities of this lizard including his observations on the egg-laying habits of this creature and the number of eggs normally laid. Subsequent to the publication of this paper there appeared in the year 1935 in the well known series *The Fauna of British India,* a work by Malcolm A. Smith, entitled 'Reptilia and Amphibia, Vol. II—Sauria'. In this work is included a short account of the breeding habits of the species, *Calotes versicolor,* in which reference is made to some of the observations made by the present writer in his paper (Asana '31) mentioned above. In this connection Malcolm A. Smith ('35) on page 193 of his work says, 'These observations are not in accordance with my own, made in Indo-China or with those of Deraniyagala made in Ceylon. I have never known them to be buried more than a couple of inches below the earth, and the number deposited may vary from 4 to 12. They vary in size from 14-15 mm. long by 8-9 mm. broad'.

On July the 20th of this year an excellent opportunity luckily came my way to confirm those of my observations in which

Malcolm Smith differs from me, barring one observation, the depth of the hole in the soft earth in which the creature lays her eggs. On this occasion I have been fortunate enough to watch at close quarters in the compound of my bungalow a female performing all her operations for laying the eggs, almost from the beginning to the end of her effort, literally under my very nose.

On the morning of the date mentioned above, my wife, while returning from the garden, accidentally caught sight of a calotes digging a small pit in the somewhat moist earth on the surface of the ground. The hole, the animal was making, was quite close to the wall of the low-plinth verandah, not even two inches distant from it. When my attention was first drawn to it, it was about 15 minutes past 10 o'clock in the morning. I could watch the creature from a very favourable position without disturbing it in the least. Myself bending low on the window-sill I could see her working directly below me on the ground hardly 4 feet away.

She was intensely preoccupied and had nearly completed digging the pit. While she was shovelling out the scraped earth from the bottom of the pit, employing only her fore feet in both these operations, more than half the length of her body was inside the hole. Noting the rate at which she worked one could estimate that she must have started digging the hole somewhere between 9-30 and 9-45 *that morning* working without a break. I intentionally use the words, *'that morning'*, because I infer that she had been working continuously the previous 30 to 45 minutes. The reasons for this inference are that (1) the earth that had been scraped out looked quite fresh, moist and granular, and (2) during her subsequent operations, when I was watching her closely and continuously, she never left the spot and worked continually.

The colour of her fore feet and that of $1\frac{1}{2}$ inches length of the spines-bearing ridge on the dorsum just behind the occiput was dull crimson or brick red. She worked all the time with her fore-feet using each limb alternately one after the other. The scraping and throwing out of the soil, both these operations, were performed by the fore feet alone, never by the hind limbs, which simply rested on the brink of the hole supporting her body. At intervals she would rest for a few seconds. The hole was made ready to receive the eggs at about 34 to 35 minutes past 10 o'clock, she having taken nearly an hour to complete it. The completed hole, as observed later, was about 3 inches broad at the rim outside, narrowing down below to the depth of about $3\frac{1}{2}$ to 4 inches.

Having finished this part of her job, she took her head and body out of the hole and sitting on the pit turned towards the east in a direction opposite to that when she was digging. She rested for a while, her hind limbs stretched over and across the hole. Then she began to eject out of her body and cloaca the eggs, which dropped one after the other down the pit, the process starting at about 10-36 a.m. During this time she lay almost motionless, across the pit her fore limbs pressed back on either side of the anterior part of the trunk. A few seconds before an

egg dropped out of the vent, a wave of contraction would pass over the abdominal wall pressing the egg outwards. In the early stages of the process, the interval between two successive eggs was about 45 to 55 seconds. Later it increased to about 60 to 70 seconds.

Twenty-one eggs were counted as they dropped into the hole, the actual egg-laying operation lasting for about 23 to 25 minutes. All this time the creature lay entirely motionless across the pit, except for the periodic contraction of her abdomen, the head and anterior half of the body pressed against the ground. The last egg laid she rested for about a minute and a half, then turned round over the hole, her head again directed towards the south.

Then she lowered the anterior part of her body and her fore limbs again into the hole. Resting these fore limbs against the opposite sides of the pit, she began spreading out and pressing the egg heap with her snout as if to arrange the eggs inside. About two minutes were devoted to this part of her work, the operation of scraping the earth for covering the eggs commencing at about 11 a.m.

Bringing her fore feet again into use she began to scrape out the earth from the sides of the pit, throwing it all on the eggs. After collecting a certain quantity she would beat the loose, granular earth with her snout and press it hard on the egg mass, resting at intervals. She toiled and laboured in this way for about half an hour, gradually filling in the hole. During this time she never changed her position, nor did she bring her hind limbs ever into play. The pit was completely filled in at about 11-32 in the forenoon. During this half hour too she was continually at it and never left the spot. After the hole was filled in she levelled the disturbed area, again with her fore feet, stayed there for a couple of minutes and left the spot.

If we presume that she first commenced marking out the area near the wall and scraping the earth for a hole some time between 9-30 to 9-45 a.m., she took about 2 hours to finish the job. During this period she worked almost continuously, taking little or no rest, and she never left the spot, certainly from about 10-15 to 11-35 a.m. and most probably from 9-30 or 9-40 a.m. to the end. This seems to be a remarkable feat in more ways than one for a creature so small.

I examined the spot after waiting for about half an hour for her return. If the creature had not been seen working there, it would have been difficult to say that a hole had been dug out in that little area, so cleverly it had been filled in and all traces of disturbance removed. The eggs were unearthed and counted again in the presence of our assistant, Mr. R. G. Kharadi, B.Sc. There was no mucous on them and they were not glued together and were quite clean, spotlessly white and exactly 21 in number. In size they did not differ from those mentioned in my previous paper (Asana '31), being about 10-11 by 4-5 mm. But they were found laid in fairly soft, moist earth the female calotes had raked up not more than $2\frac{1}{2}$ to 3 inches below the earth.

It was a most interesting experience watching this fascinating phenomenon of nature at such close quarters. If it could have been reproduced in a film the mother *Calotes* might have well proved a star performer. One regrets having missed the opportunity.

GUJARAT.
20th July, 1941.

J. J. ASANA,
Gujarat College,
Ahmedabad.

BIBLIOGRAPHY

1. Asana, J. J., 1931.—The Natural History of *Calotes versicolor* (Boulenger), the common Bloodsucker. *Bom. Nat. Hist. Soc.*, vol. xxxiv, No. 4.
2. Malcolm A. Smith, 1935.—*The Fauna of British India,* vol. ii Sauria, (Reptilia and Amphibia), p. 193.

XIV.—REMARKABLE FEEDING HABITS OF AN INDIAN CARP [*BARBUS* (*PUNTIUS*) *DOBSONI* DAY].

The following observation may prove of interest to fellow fishermen and naturalists.

On repeated occasions I found the stomach and intestine of the Carp, *Barbus* (*Puntius*) *dobsoni* caught in rivers around Poona, much distended with a mass of finely disintegrated vegetable matter in appearance like chewed-up grass.

The source of this diet intrigued me greatly, as I could not detect much aquatic vegetation in the gravelly pools, where the fish were caught.

The explanation came forth, when I noticed a number of large carp disporting themselves close to a herd of village buffaloes wallowing in a pool of the Nira river. Observation with field glasses from an elevated point disclosed fish approaching the posteriors of the ruminants and gorgeing themselves on their freshly produced dung, thus obtaining this predigested diet so to say 'straight from the horses mouth' or rather the reverse.

My observations were confirmed by Mr. McCann, who had noticed a similar occurrence near the Pinjrapole at the Ulhas river.

The fish weighed from 4 to 14 lbs. and tallied with the particulars given in books of reference for *Barbus dobsoni*, a common carp in our parts.

Nearly all of them were caught on an unshelled groundnut used dry fly fashion.

116, KOREGAON PARK,
POONA.
22nd July, 1941.

M. SUTER,

XV.—A MANTIS-BLOODSUCKER TRAGEDY.

While watering my garden on the evening of the 28th July I spotted a Mantis (*Deiphobe ocellata*) making a meal of a young Bloodsucker (*Calotes versicolor*) almost as large as itself. The